

**Federal Communications Commission
WC Docket 10-90**

**Before the
Federal Communications Commission
Washington, D.C. 20554**

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| Connect America Fund |) WC Docket No. 10-90 |
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| A National Broadband Plan for Our Future |) GN Docket No. 09-51 |
| |) |
| Establishing Just and Reasonable Rates for Local Exchange Carriers |) WC Docket No. 07-135 |
| |) |
| High-Cost Universal Service Support |) WC Docket No. 05-337 |
| |) |
| Developing an Unified Intercarrier Compensation Regime |) CC Docket 01-92 |
| |) |
| Federal-State Joint Board on Universal Service |) CC Docket 96-45 |
| |) |
| Lifeline and Link-Up |) WC Docket No. 03-109 |
| |) |
| Universal Service Reform—Mobility Fund |) WT Docket 10-208 |

Comments of Microcom

Since the emergence of broadband as the means of delivering access to the internet throughout the world, the Universal Service Fund (USF) has been used indirectly to support broadband deployment by providing some of the money to push the telco fiber and microwave networks further out into rural areas. In effect, the USF has helped fund the competitors to satellite broadband providers. In this Order the Commission has elevated satellite broadband to partner status in meeting the broadband goals of the United States. We applaud the Commission's decision on this and offer the following comments.

K. Remote Areas Fund

Paragraph 1225. We understand the Commission desires to support the Remote Areas Fund as a portable consumer subsidy, but we believe the economics of providing satellite broadband argue for a different means of support in some areas, especially remote Alaska. Specifically:

- a. The same areas where it is not feasible to support a terrestrial infrastructure also encounter adverse economics when providing satellite coverage. Only one advanced generation Ka band satellite will be offering service in Alaska (ViaSat-1) in the foreseeable future and it will be covering only about 1/5 of the state. The population density of the areas not being covered may not offer sufficient numbers of users to make further investments in spot beams and gateways economically feasible even though the investment itself may not be that large. It may be feasible to use some of the remote areas fund to pay for a payload or payload(s) to serve these areas on future satellites.
- b. Next generation satellites have been and are being designed to provide direct to consumer services. These satellites are also excellent platforms to provide internet services to remote internet service providers operating cable modem, DSL, and wireless distribution systems. Any subsidy should include a mechanism that encourages these satellite operators to make bandwidth available to these ISP's. There is an inherent advantage to having a local network in a community both for business and public safety. A collection of direct to consumer terminals does not create a local network. Rural Alaska represents the largest concentration of remote ISPs whose sole source of bandwidth is satellite. Any rules in place on the Remote Areas Fund must recognize the value of these networks where they exist and not create a consumer subsidy or infrastructure subsidy program that puts them at a competitive disadvantage.

Paragraph 1230. I have found the National Broadband Map useless for determining broadband availability in remote areas of Alaska as the data is mostly missing.

Paragraph 1239. The Commission needs to do an engineering assessment of the feasibility of using satellite broadband as an alternative to local voice service. While satellite broadband is certainly capable of supporting VOIP, anyone who has ever placed a dual hop satellite telephone call understands the problems with this service. By making VOIP a standalone obligation of ETCs that are satellite broadband carriers, the Commission creates the possibility of creating a collection of users with common interests in a remote area whose only method of calling each other is over dual hop satellite. Rural Alaska has faced this dual hop problem since the 1970's with the advent of a state wide C-band satellite network. Only later did regional hubs with DAMA type services eliminate some of the dual hop telephone traffic. In our previous comments, we indicated there is some value in local broadband networks. Handling VOIP is just one of those functions. Satellite is a viable means of reaching the rest of the world, but it is not effective serving the needs within a community.

Paragraphs 1241, 1242, 1243, 1244, 1245, and 1246. In these 6 paragraphs the Commission has defined the technical and business problems facing rural satellite based ISPs and satellite broadband providers. Speed, latency, and capacity are all related. As the number of users in a fixed amount of bandwidth goes up, speed declines and latency goes up. Network providers use capacity limits to maintain user experience (speed and latency) within the limits they have established for their service. The business side seeks to pack as many users as possible into the available bandwidth while maintaining the user experience. The practical measure of this is the term subscription rate, or in other words, how many times has someone sold the bandwidth. I can buy a 512 kbps by 2.0 mbps satellite service for \$120, \$800, or \$2500 per month. The only difference is the subscription rate and how much I am allowed to download. The terrestrial world deals with the same reality, it is just the bandwidth costs are much lower, the speeds much higher, the latency less, and the capacity either non-existent or so high as to be inconsequential. For satellite broadband the standard should be crafted around the subscription rate and capacity. That defines the user experience. Absent streaming video, I can have a pretty good user experience on a 512kbps uplink and 2 mbps downlink if there are only 10 other users.

Paragraph 1249. The Commission seeks comment on whether to implement a means test for paying the portable consumer subsidy. We see two problems with that approach in rural Alaska.

- a. Bandwidth is the issue. Administration of a portable consumer subsidy is the most difficult and complex means of support the Commission could adopt as it requires qualifying people one at a time. It is also the least effective in solving the core issue, the price and availability of bandwidth and a network to distribute it. Portable subsidies enable individuals and families to buy services but don't build networks to provide them. Their primary effect is to increase the number of possible subscribers. Past government broadband efforts have picked winners and losers in specific geographical areas by funding infrastructure deployments ranging from single consumer satellite terminals to a \$30 million terrestrial microwave system. The result was a lot of infrastructure, but no material change in the cost of internet service. Future subsidies aimed at reducing hardware prices for next generation satellite services may allow me to upgrade my VW to a Porsche, but "gas is still \$6.50 a gallon". Internet usage is based on the "price of gas", not the speed of the car and the problem with faster cars is they use more gas. One of the goals of the remote areas fund has to concentrate on reducing the price of bandwidth and that is a supply issue for broadband satellite and a cost of delivery issue for terrestrial systems.
- b. Subsidized to do what? While advanced generation satellites can provide impressive upload and download capabilities, the network operator's business plans ration the throughput through fair access policy download limits that are a fraction of the download limits that are placed on urban terrestrial customers. This will always make satellite broadband an expensive alternative to terrestrial broadband. For example an HD movie downloaded over a cable modem system with a 200GB download limit would cost \$2.21. The same movie downloaded over a next generation satellite with a 25 GB download limit would cost more than \$17. Given the pricing model for satellite broadband based on capacity with relatively low entry prices for hardware, it begs the question, "what are we subsidizing them to do". The driver in this scenario is the cost to do things using an internet connection. We must carefully put boundaries on what we are

subsidizing. Do we subsidize qualifying subscribers so they can download movies for \$2.21 while their better off neighbor is spending \$17? Under the broadband stimulus effort in 2011, we installed a lot of satellite terminals for people who certainly had the means. That didn't make much sense, just like installing a satellite terminal for a poor family doesn't make much sense when they use their download allowance in 3 hours watching You Tube and can't afford to buy more. The Commission seems to be heading toward a subsidy aimed at lowering monthly costs for select subscribers much like is done for lifeline voice service. Dial tone and broadband are different things. With a phone I can make as many local calls as I want and the price doesn't change. In satellite broadband, every key stroke and mouse click has a price. In urban areas broadband is an increasingly viable means of getting video entertainment. In remote areas the cost makes this an unlikely scenario for most consumers. We don't underwrite satellite or cable TV service for low income households, but subsidizing broadband can do just that. So exactly what are we subsidizing them to do?

In summary, as we look at possible Remote Areas funding of broadband in Alaska, we think these objectives must be met:

- a. Advanced generation satellites must support as much of the population as practical by insuring satellite owner/operators put sufficient resources on future satellites. A subsidy may be required to make this happen in Alaska.
- b. Make the bandwidth on these future satellites available to local ISPs and direct to the consumer.
- c. Extend terrestrial networks when they can offer cost per unit of bandwidth that is less expensive than satellite based capacity.
- d. If there is only one source of internet capacity to serve a community, insure there are mechanisms in place to allow competition in providing service to the final consumers.

Respectfully Submitted

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Tom Brady
Microcom
129 West 53rd Ave
Anchorage, AK 99518
907-264-0016